



Nutrition and Fitness in Texas Schools

Policy Brief

Health Policy Forum
Texas Association of Broadcasters Building
Austin, Texas
August 30, 2001

Sponsored by:

The Robert Wood Johnson Foundation
Houston Endowment, Inc.
League of Women Voters Education Fund
League of Women Voters of Texas Education Fund
TENET Healthcare Foundation

This policy brief served as the background piece for the August 30, 2001 Health Policy Forum on Nutrition and Fitness in Texas Schools.

The Texas Institute for Health Policy Research

Our role at the Texas Institute for Health Policy Research is to serve as a catalyst for improving the health of all Texans through education in health policy options and grassroots community-based health solutions. While all levels of government have a role in addressing health care issues, the Institute believes that solutions for the future of health care must be reinvented from the “bottom up,” community by community.

Stakeholders at the community level - business people, consumers, insurance providers, health providers, community leaders and government employees - must be involved. The Institute encourages the development of stakeholder groups to take leadership in their community to pursue a community-health collaborative process. The aim of the Institute is to facilitate dialogue, as opposed to debate.

Educating Policy-Makers

The Institute’s Health Policy Forums provide a vehicle for the dissemination of timely health and health care information. In 2000, the Robert Wood Johnson Foundation awarded a three-year grant to the Institute to join the State Forums Partnership Program. Using the RWJ grant and matching funds from the Houston Endowment and the Tenet, Meadows, RGK, Amarillo Area, and Don and Sybil Harrington foundations, the Institute designs the forums to provide elected officials, state agency leaders, and other stakeholders with unbiased information about important health issues and a safe harbor for discussion. By drawing on the strengths and expertise of other entities involved with public policy such as the League of Women Voters of Texas, we are able to provide quality information and promote dialogue among varied groups.

Facilitating Community Collaboration

Another way the institute facilitates dialogue is through statewide symposiums and community-based collaboration. The 2001 symposium asked the question “Can Communities Take Charge?” Community groups addressed six priority issues: data collection, accessing state and federal resources, asset mapping, working with elected officials, involving the business community, and foundation resources. Our workshops are designed to provide tools to enhance existing community collaboratives, as well as organize community collaboratives where they currently do not exist.

The Institute initiated the Landscape Project as a tool that provides data to guide the development of local health services. The project provides demographic, economic, health, and social data and analysis for all 254 Texas counties.

The project provides a “yardstick” measurement of where a community/region is in comparison to its local and regional neighbors, thereby helping policymakers make data-driven decisions on local health strategies.

Committed to the Health of Texans

The Institute accomplishes its goals through a board of active business and health providers leaders, foundation grants contracts from partnering agencies, contributions, and sponsorships. Following the dictum of Margaret Mead, “Never doubt that a small group of thoughtful, committed people can change the world. Indeed it is the only thing that ever has.”. We are committed to our mission: “to provide leadership to improve the health of Texans through education, research and health policy development”

To learn more about the Institute, our publications, and projects, visit www.healthpolicyinstitute.org, or call (512) 465-1019.

Summary

Countless diet and exercise fads, conflicting nutritional advice, myriad new food products, long workdays: All of these factors make it increasingly difficult for Americans to incorporate healthy habits into their lifestyle. When it comes to children, who benefit developmentally from good nutrition and fitness, the issue becomes more critical. Based on the U.S. Department of Agriculture's (USDA) Healthy Eating Index scores from 1994-1996, most children have a diet that is poor or needs improvement, and their diet quality generally deteriorates as they grow older.¹

Physical fitness is equally as important as a healthy diet in promoting good health and disease prevention. There is evidence that it improves academic performance as well. Nevertheless, less than a fourth of the nation's children get at least 20 minutes of vigorous exercise per day.² One fourth of all students do not participate in physical education classes.³

As a result of an unhealthy lifestyle, children are beginning to develop "adult" health problems, such as diabetes mellitus (type II) and cardiovascular problems. An unhealthy lifestyle has been linked to six of the ten leading causes of death in America today: cancer, diabetes, arteriosclerosis, stroke, heart disease and liver damage.

This paper explores the nutrition and fitness issues relating to youth. It provides a literature review of research regarding policy and health implications of an unhealthy lifestyle among juveniles and describes some initiatives for change nationally, in Texas, and in other states.

Childhood Obesity: A Big Problem

Much of the concern about children's nutrition and fitness is due to an alarming trend toward overweight and obesity. Approximately one in 20 adolescents is obese. Another 5 to 10 percent are overweight.⁴ Since child obesity most commonly begins between the ages of five and six and during adolescence⁵, public and private schools are an ideal venue for prevention and intervention initiatives.

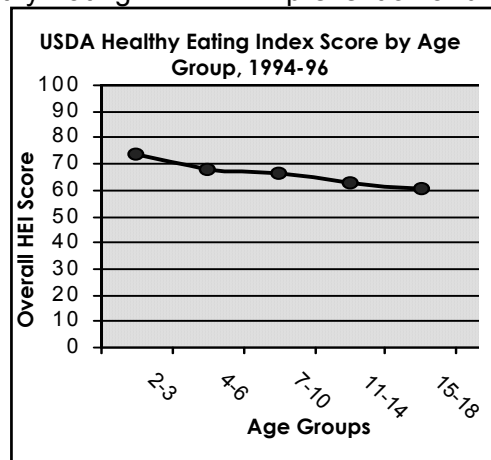
Such initiatives are critical – a child who is obese between the ages of 10 and 13 has an 80 percent chance of becoming an obese adult.⁶

Obesity increases the risk of heart disease and myriad health problems for adolescents as well as adults. From 1993

to 1998 the number of youth with type II diabetes, considered "adult" diabetes, tripled.⁷ Like adults with the disease, many children can control their blood glucose levels with weight loss and diet modification. Most Type II diabetics, however, eventually need medication and insulin. As Dr. Sandra Puczynski, chair of the research advisory board for the Juvenile Diabetes Foundation noted, "Losing weight will not cure them, but it would help significantly."⁸

Obese children also often show early indicators of heart disease due to elevated levels of cholesterol in their blood.⁹ Many have emotional issues related to their physical conditions.

Though some people are predisposed to excessive weight gain, exercise and a healthy diet can prevent obesity and related diseases. Unfortunately, many factors put youth at risk for overweight and poor nutrition.



Children and Nutrition

Because eating behaviors are learned and established in childhood and adolescence,¹⁰ it is vital for children to maintain good nutrition. According to the USDA, however, only two percent of school-age children meet the dietary recommendations from the Food Guide Pyramid.¹¹ Fried potatoes are often the food of choice that comprises the average 3.6 daily servings of fruits and vegetables that children and adolescents eat. About half of all children and adolescents eat less than one serving of fruit per day.¹²

The USDA calcium requirements are sufficient to ensure proper skeletal growth and bone development, yet only about 30 percent of all children meet them.¹³ Girls who fail to meet calcium requirements are at a higher risk for osteoporosis later in life.¹⁴

Deficiencies in specific nutrients also have an immediate effect on the ability to concentrate.¹⁵ Evidence to support this indicates that children who eat breakfast perform better on standardized tests and attend school more regularly.¹⁶

Recent research also provides evidence that undernutrition “during any period of childhood can have detrimental effects on the cognitive development of children and their later productivity as adults.”¹⁷

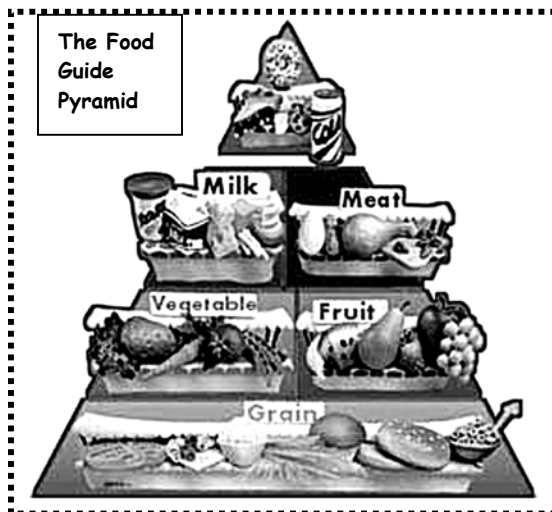
Given the serious problems associated with obesity and poor nutrition, policymakers and community leaders have focused on children’s diet quality for many years. According to one study, there have been some decreases in overall fat, saturated fat and cholesterol consumption among 10-year-olds since 1973.¹⁸ There are numerous interrelated factors, however, that affect the way that children eat. This is especially true for adolescents.

Choices and Influences: Why do kids eat how they do?

Many factors contribute to the food choices that children and adolescents make. Some of those which can be affected by policy and public awareness are convenience, food availability, parental influence (including culture and/or religion), benefits of foods (including health), body image, habit, cost, and the media.¹⁹

Barriers to eating more fruits, vegetables and dairy products, and limiting high-fat foods include “a lack of sense of urgency about personal health in relation to other concerns, and taste preferences for other foods.”²⁰

Public and private schools can greatly influence how children eat. School lunches, for example, affect



convenience and availability of food during the day for many students. Health classes can promote awareness about the benefits of good choices, as well as the sense of urgency that young people lack. This section focuses on dietary issues and the school setting.

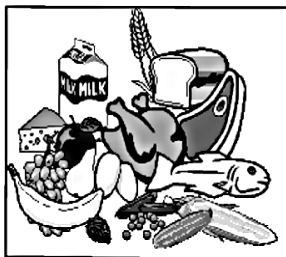
School Meal Programs:

Recognizing the value and importance of nourishing children, private societies and associations interested in child welfare and education began the earliest school meal programs.²¹

After about a decade of various forms and levels of federal assistance for school meals, the National School Lunch Program (NSLP) was established in 1946. School breakfast programs and special milk programs began with the Child Nutrition Act of 1966.²²

The NSLP currently provides “nutritionally balanced, low-cost or free lunches to nearly 27 million children each school day in more than 96,000 public and nonprofit private schools and residential child care institutions.”²³

The school lunches and other meals are an important contribution to children’s nutrition. Students who participate in the meal programs tend to



have “better nutrient intakes than children who ate elsewhere, including children who (bring) their lunch from

home.”²⁴ A recent dietary assessment study of school meals also noted that the reimbursable meals students selected via the NSLP provide more than the Recommended Daily Allowance of critical nutrients.²⁵ Another analysis showed that meal program participants eat more nutritiously outside of the school setting, consume less added sugar and soda, and tend to consume more vegetables, dairy products and protein-rich foods than their counterparts who do not eat meals prepared at school.²⁶

Theoretically, school meals could improve children’s nutrition and help address the obesity issue considerably, yet the NSLP and the School Breakfast

Program (SBP) have been in place for decades and American youth are increasingly overweight and chronically undernourished.

Competitive Foods and the Vending Machine Issue:

Competitive foods are those that are sold in competition with NSLP items. They include food from vending machines, snack bars, restaurants, a la carte lines and school stores. Numerous studies indicate that they not only undermine participation in school meal programs, but they also diminish the quality of adolescents’ diets.

In a study designed to determine how children’s eating patterns change over time, Lytle, et al, found that between the third and eighth grades, the proportion of her study sample (n=291) consuming sodas nearly tripled, and milk consumption dropped by as much as 40 percent.²⁷ Part of this is due to the availability of sodas from vending machines on school campuses and aggressive marketing from the soft drink companies.²⁸

Foods from machines and school stores also tend to be high in fat, salt and added sugar. One study of vending machines in secondary schools showed that only 27 percent of machines offered low-fat snacks, compared to the 60 percent that offered candy bars, and the 57 percent that offered chips.²⁹

A Texas study that compared the food choices of fourth grade students in the NSLP, and fifth-graders in the NSLP who also had access to a la carte and snack bar items found that the fourth graders maintained a healthier diet than the older children did. What’s more, the fifth grade students who chose to eat only foods offered as part of the NSLP consumed more fruit, juice and vegetables overall than their counterparts who purchased snack bar foods.³⁰

While examining the a la carte food items available to junior and senior high school students and their consumption choices, Harnack found that about 34 percent of students purchased items. While many of the items purchased were from the vegetable and entrée categories, closer inspection showed that the individual items purchased primarily consisted of French fries, hamburgers and pizza.³¹ Though most schools offered some low-fat a la carte choices, high fat foods were prevalent.³²

Considering the negative effects of snack bar, a la carte and vending machine foods, why do schools provide them?

The 19 schools in the Harnack study raised, on average, \$620 daily from the a la carte line.³³

Perhaps the most controversial venders are the soda companies. The National School Boards Association estimates that approximately 200 districts nationwide have “exclusive pouring contracts” with Coca-Cola or PepsiCo.³⁴ “Exclusive pouring” refers to the exclusive vending of one company’s products within a school district. An exclusive contract can generate \$100,000 or more annually for the district.³⁵ One of the largest contracts is expected to bring in \$35 million for 38 school districts in Michigan over the next seven years.³⁶ One Texas district received \$3.45 million for a 10-year exclusive contract with one of the soft drink companies.³⁷

Vending machine sales, particularly soda sales, can contribute significantly to a school district’s budget. Research shows, however, that soft drink consumption, and consumption of other sugar-sweetened drinks, increases children’s odds of becoming obese.³⁸

Messages About Healthy Living:

Vending machines are not a problem – the items they sell are. Critics argue that selling unhealthy

competitive foods makes nutrition programs in schools less meaningful because students get the message that such foods are part of a suitable diet. The American Dietetic Association states that,

“...the school and community have a shared responsibility to provide... access to high-quality foods and nutrition services.... However, competing and profit-making food and beverage sales may create a conflicting environment and can contradict lessons taught in health and nutrition education ...Education goals, including the nutrition goals of the National School Lunch Program and the School Breakfast Program, should be supported and extended through school district policies that create an overall school environment with learning experiences that enable students to develop lifelong, healthful eating habits.”³⁹

To this end, there is evidence that simple pricing strategies can influence what youth purchase from vending machines.

The contents of 55 vending machines in 12 secondary schools and 12 worksites were altered to include low-fat snacks at various levels of reduced prices. When prices were reduced by half, sales increased by 93 percent. Sales volume especially increased at the schools, and profits were not significantly reduced.⁴⁰ Thus, it may be possible to generate income for schools via vending machines and snack bars without undermining important messages about good health.

Although it “died” in committee, House Bill 1910 by Rep. Jaime Capelo would have required schools to include healthy products for at least half of the items in vending machines accessible by students. There is currently legislation in Congress designed to curb the sale of non-nutritious competitive foods in schools.⁴¹

Exercise: A Miracle Cure?

Recognizing its importance, school health and nutrition programs generally include exercise as a vital component. Exercise may be even more critical than diet for reducing obesity and disease risk factors.



In a study of 36 obese adolescents with multiple risks for coronary heart disease, Becque et al found that “exercise training causes the greatest change in multiple and specific coronary heart disease risk incidence,” independent of any changes in the adolescents’ weight or measure of fat.⁴² It also helps prevent diabetes and some types of cancer.⁴³

The National Institute of Diabetes and Digestive and Kidney Diseases conducted the first major trial to show that diet and exercise can “delay diabetes in a diverse population of overweight people with impaired glucose tolerance,”⁴⁴ a condition in which blood glucose levels are higher than normal but not yet diabetic.

Aside from the health benefits of exercise, it promotes feelings of well-being and physical confidence – shown to be critical for self-esteem among youths, particularly preadolescent girls.⁴⁵ In addition, there is evidence that it improves academic performance.

One of the primary arguments against implementing school physical education programs is they will hinder academic progress or reduce time spent teaching core academic subjects.^{46 47} Several studies indicate that spending time in physical education classes had no detrimental effect on standardized achievement tests or other measures of achievement.⁴⁸ More important, exercise seems to accelerate learning and psychomotor development, as well as increase cerebral blood flow, self-esteem and alertness in youth. It also

enhances nutrient intake, which, in turn, may improve academic functioning.

Despite the many rewards of a physically active lifestyle, few American children exercise regularly or enough.⁴⁹ About half of young people age 12-21 are not “vigorously active” regularly, including 14 percent who are inactive.⁵⁰

Physical inactivity and unhealthy diet lead to a total of “at least 300,000 preventable deaths each year.”⁵¹

Many problems contribute to a sedentary lifestyle among youth. For example, low-income youth, who are at a higher risk for diabetes, may not live in neighborhoods that offer recreation programs.⁵² When recreation programs are available, busy parents may not have the means to provide transportation or necessary equipment and other support.

In terms of schools, coordinated intervention programs that focus on the interrelated factors affecting overall health, including family and community involvement, are very effective. Several programs have been successfully implemented. Still, King, et al note that,

Given the limited resources and competing educational demands placed on schools, developing physical education curricula that provides regular physical activities and skill training sufficient to meet national objectives requires policy intervention..., as well as changes in the philosophy, training and certification of our nation’s physical educators.⁵³

Some educators have forged ahead with a philosophy of promoting fitness, rather than team sports and skill development. Students in their programs can be found walking or jumping rope – activities that they can do for the rest of their lives.⁵⁴

The Cost of Living The Way We Do...

The American Heart Association estimated the cost of cardiovascular diseases and stroke to be about \$326.6 billion, including direct and indirect costs.⁵⁵ The total annual economic cost of diabetes in 1997 was estimated to be \$98 billion.⁵⁶ In Texas, the annual cost of diabetes is more than \$9 billion.⁵⁷ There is little argument that unhealthy living and chronic disease cost a great deal in terms of dollars.

Aside from medical costs, however, there are the unmeasured costs of underachievement among undernourished children and the mental health implications of obesity and chronic illness. These are costs that often eventually translate into dollars.

From a policy standpoint, there is every reason to promote physical fitness and good nutrition. In Texas, we have some population characteristics that make the issue even more pressing.

Texas: The State We're In...

Minority populations, including African Americans, Hispanics, Native Americans and Asians, have the highest incidence of diabetes and the highest rates of complications of the disease.⁵⁸

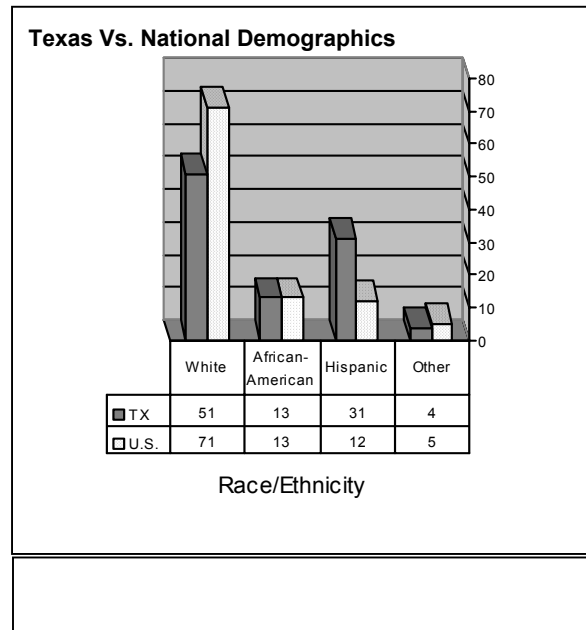
Diabetes, in fact, is two to three times more common in Mexican-American adults than in non-Hispanic whites.⁵⁹ In Texas, it is the sixth leading cause of death.⁶⁰

According to a recent report by the Texas Diabetes Council,

The disproportionate effect of diabetes on minorities, combined with the rapid growth of minorities as a percentage of the Texas population means the impact of the disease will be doubly harsh in years to come.... New evidence of the development of a downward creep in the age at which

people are diagnosed with type 2 diabetes promises to intensify this public health challenge....

The need to target the Hispanic youth population to control obesity requires cultural sensitivity and a campaign tailored to the Hispanic community at large. Information about inexpensive nutritious foods is also an important part of an anti-obesity/disease prevention campaign, as many Texans live in poverty.



Children and adolescents living in low-income households are also at greater risk for obesity and undernutrition. Poverty is a serious problem in Texas, particularly in the Texas-Mexico border region. Overall, the state's poverty rate is about 42 percent, compared to the national average of 35 percent.⁶¹

Approximately 1.5 million low-income Texas school children rely on the NSLP for nutritious meals, however, only half of eligible children participated in the School Breakfast Program in 1998. The Center for Public Policy Priorities estimates that one in 10 Texas children under 12 are hungry.⁶² As noted, poor nutrition has a negative

impact on cognitive development and productivity.

A recent New York Times report states that iron deficiency anemia is “twice as common in poor as in better-off children” and that providing vitamins to the lower-income children improved test scores.⁶³

Although Texas policymakers face some tough obstacles to increasing the specific health outcomes related to obesity and poor nutrition, several legislative initiatives and programs in place are already having a positive impact.

State Policy Initiatives and Programs

Since the Texas Legislature established the Texas Diabetes Council (TDC) in 1983, the council has been working to prevent diabetes through health promotion, and to assist diabetics with quality information and advocacy.⁶⁴ It is the primary agency dealing with diabetes issues in Texas.

The council's Texas Diabetes Program is one of 16 programs nationally that receives funding from the Centers for Disease Control and Prevention to promote good health through community-based organizations (CBO's).⁶⁵ One of the strengths of the program is that it uses local lay leaders to conduct workshops within their communities, thus developing an information network respectful of community and cultural values.

The Coordinated Approach to Child Health (CATCH) Program is a school-

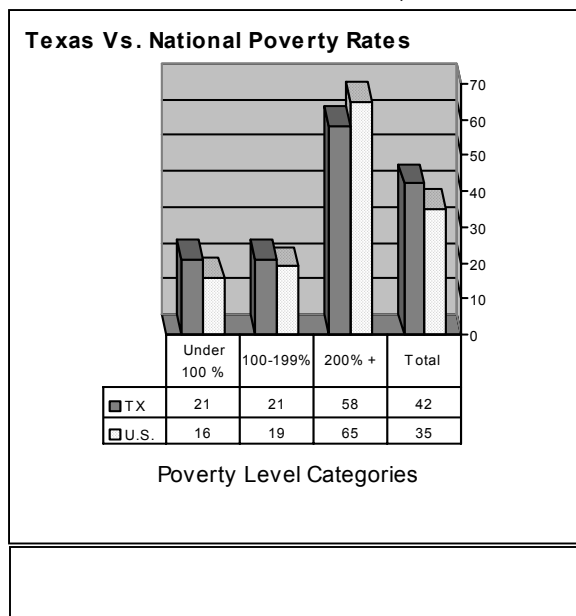
based health program targeted to children and adolescents. By involving the children, their teachers, parents and community members, and by focusing on diet and exercise, CATCH promotes genuine lifestyle change.⁶⁶ The program began as a pilot in Texas (Houston area) and three other states.⁶⁷ Then known as the “Child and Adolescent Trial for Cardiovascular Health,” the program was shown to “modify the fat content of school lunches, increase moderate-to-vigorous physical activity in PE, and improve eating and physical activity behaviors in children during three school years.”⁶⁸ CATCH currently operates in more than 725 Texas schools.⁶⁹ Companion bills SB 885 by Sen, Eddie Lucio and HB 796 by Rep.

Manny Najera, would have required all school districts to operate diabetes prevention programs and to meet diabetes prevention nutrition guidelines established by the TDC, in addition to the federal guidelines for school meals. Both bills “died” in committees.

The Texas Education Agency and Region Service

Center XII, serving the Waco area, are creating a Health and Physical Education Center for Educator Development (CED). A survey of school principals indicated that the majority believes that PE programs are valuable and important.⁷⁰ The CED would:

- assist educators and communities to implement the Health and Physical Education Texas Essential Knowledge and Skills (TEKS).



- assist in building partnerships among schools, communities and universities to elevate awareness about improving health and physical education.
- assist in strengthening community involvement and local control in relation to health and physical education.⁷¹

Several laws enacted over the last few years have implemented some programs and initiatives also designed to improve the health of Texas children and address the diabetes and/or nutrition problems. Following is a list that highlights important health promotion/disease prevention laws from the last three legislative sessions.

75th Legislature (1997)⁷²

- Senate Bill 162 by Sen. Gonzalo Barrientos and Rep. Richard Raymond implemented a diabetes care program in counties with a high incidence of diabetes to provide public education about the disease. The program provides continuous care to Medicaid recipients who have diabetes-related conditions.
- Senate Bill 163 by Sen. Judith Zaffirini and Rep. Hugo Berlanga provides coverage under health benefit plans for certain supplies and services associated with the treatment of diabetes.

76th Legislature (1999)

- House Bill 1676 by Rep. Rob Junell and Sen. Bill Ratliff appropriates available earnings of the permanent fund for children and public health (set up

with tobacco settlement funds) to the Texas Department of Health (TDH) to develop cost-effective strategies to improve health outcomes, to provide grants to local communities to address specific public health priorities, and provide essential public health services.

- House Bill 1860 by Rep. Roberto Gutierrez and Sen. Frank Madla requires that school children be screened for acanthosis nigricans, (darkening of the skin in certain areas of the body related to insulin metabolism) during the required vision and hearing screening.
- House Bill 1864 by Rep. Jaime Capelo and Sen. Elliott Shapleigh established a temporary committee to study issues related to the development of a uniform Optional Promotora Outreach Program to establish standards and a certification program for promotoras. Promotoras are part of the health care system in many Texas border communities. They conduct needs assessments, provide case management, patient education, referrals, etc. and generally facilitate access to care.
- House Bill 2025 by Rep. Joe Pickett and Sen. Shapleigh established the Border Health Institute in El Paso to deliver health care, provide health education and conduct research in fields of study affecting public health in the border region, including research related to infectious diseases, diabetes, environmental health issues and children's health issues.

77th Legislature (2001)

- House Bill 757 by Rep. Garnet Coleman and Sen. David Bernsen established the health disparities task force, charged with consulting with the Texas Department of Health and Office of Minority Health and Cultural Competency in eliminating health and health access disparities in Texas among multicultural, disadvantaged, and regional populations.
- House Bill 2510 by Rep. Norma Chavez and Sen. Robert Duncan establishes the Texas Tech Diabetes Research Center in El Paso to research diabetes and factors associated with the disease. The center consults with the Texas-Mexico Border Health Coordination Office of The University of Texas-Pan American that administers the acanthosis nigricans screening program.
- Senate Bill 19 by Sen. Jane Nelson and Rep. Jim Dunnam authorizes the State Board of Education to require students enrolled in grades kindergarten through six to participate in daily physical activity. It also requires the Texas Education Agency to make available to each school district a coordinated health program. Currently, physical education classes are required only for grades 9-12.
- Senate Bill 283 by Sen. Nelson and Rep. Garnet Coleman requires the Health and Human Services Commission to develop and implement a targeted pilot project to determine the effectiveness of a disease management program in the reduction of long-term health care costs, improved care and better utilization patterns.
- Senate Bill 1454 by Sen. Eddie Lucio and Rep. Kino Flores created the Food for Health Advisory Council to better coordinate the state's food for health research programs, including research to create more nutritious produce and to promote increased consumption of Texas fruits and vegetables, to avoid heart disease, stroke, diabetes mellitus, certain kinds of cancer, obesity, and other nutrition-related diseases.
- Senate Bill 1456 by Sen. Lucio and Rep. Jaime Capelo establishes a pediatric diabetes research advisory committee to research pediatric diabetes and related conditions, assess research sites, analyze the economic and public health impact of diabetes and make recommendations regarding research and funding.

In addition to programs supported or implemented by state agencies, there are several programs funded by non-government agencies. For example, The Social and Health Research Center in San Antonio funds the Bienestar Program. Similar to CATCH in some ways, the program involves parents, teachers, cafeteria staff, students and after-school child care providers to deliver culturally appropriate lessons about diet and exercise and to promote diabetes prevention among Mexican-American children.⁷³

Other states have implemented initiatives to improve children's health. The following section highlights some of the innovative programs outside Texas.

A Few Initiatives Outside Texas

Physical education classes are beginning to change to reflect a “fit for life” philosophy. According to a December 2000 article in TIME magazine, “hundreds” of school districts are adopting “New PE.” Essentially, physical educators are beginning to teach kids how to exercise for lifelong good health.⁷⁴

“From the Cafeteria to the Classroom” is a program in Florida through which nutrition educators from the school food services visit classrooms to teach young children about basic nutrition. Using a “hands on” food pyramid with food models, the program stresses the National Cancer Institute’s “5 A Day” message about fruits and vegetables.⁷⁵

A three-year demonstration project in Idaho, Iowa, Kansas and Michigan uses classroom education and physical activity, training for foodservice professionals, school-wide nutrition “events,” messages to families, school-community partnerships and media coverage and participation to provide a comprehensive approach to improve children’s long-term eating and physical activity habits.⁷⁶

A longtime leader in nutrition research and education, Tufts University is collaborating with the National Theatre for Children (NTC) to promote good health. Founded in 1979 to educate children about important issues through the theater, the NTC worked with the Tufts Center on Nutrition Communication to develop the play, called “The Prince of the (Food Guide) Pyramid,” which encourages kids to eat a variety of foods, have five daily servings of fruits and vegetables, drink milk and exercise.⁷⁷

Conclusion

A healthy lifestyle is the single most important and effective means of avoiding life-threatening diseases and ensuring a high quality of life. Compared to the social and economic costs of treating serious chronic illness, prevention efforts are a bargain, but any social change requires a comprehensive, coordinated effort to change public ideas, behaviors and values.

Texas has several initiatives already in place to promote nutrition and exercise and improve the lives of many families, and these initiatives can be the basis for more intensive change, but there is much to be done. Texas’ rich cultural diversity, often a strength, will make the efforts all the more challenging. Focusing on children and using public schools as a means to shape their habits while they are very young, however, will reap lifelong benefits for the children. What’s more, the state will benefit for countless years to come as new generations of Texans adopt healthy lifestyles as a matter of course.



- ¹ Center for Nutrition Policy and Promotion. *Report Card on the Diet Quality of Children*, Nutrition Insights No. 9. U.S. Department of Agriculture, October 1998.
- ² Barovick, Harriet. "Fit For Life," *Time*, December 4, 2000, p. F1-3 (insert report on family issues).
- ³ Ibid.
- ⁴ The Columbia University College of Physicians and Surgeons (CUCPS) Complete Home Medical Guide, URL: www.cpmcnet.columbia.edu/texts/guide.
- ⁵ American Academy of Child and Adolescent Psychiatry (AACAP), *Facts for Families*, No. 79, January, 2001.
- ⁶ CUCPS
- ⁷ Thompson, Ginger. "With Obesity in Children Rising, More Get Adult Type of Diabetes", *New York Times*, December 14, 1998.
- ⁸ Ibid.
- ⁹ National Cholesterol Education Program. *Report of the Expert Panel on Blood Cholesterol Levels in Children and Adolescents*. Bethesda, MD: National Heart, Lung and Blood Institute, 1991. National Institute of Health Publication No. 91-2732.
- ¹⁰ Leupker, Russell V., et al. Outcomes of a Field Trial to Improve Children's Dietary Patterns and Physical Activity: The Child and Adolescent Trial for Cardiovascular Health. *Journal of the American Medical Association*, March 13, 1996, V. 275, No. 10, p. 768.
- ¹¹ U.S. Department of Agriculture (USDA). *Foods Sold in Competition with USDA School Meal Programs: A Report to Congress*, January 12, 2001.
- ¹² Krebs-Smith, S., et al. "Fruit and Vegetable Intakes of children and Adolescents in the United States." *Archives of Pediatric and Adolescent Medicine*, v. 150, p. 81-6, 1996.
- ¹³ Ibid.
- ¹⁴ Ibid.
- ¹⁵ Center on Hunger, Poverty and Nutrition Policy. *Statement on the Link Between Nutrition and Cognitive Development in Children*. Medford, MA: Tufts University School of Nutrition Science and Policy, 1998.
- ¹⁶ Meyers, A.F., et al. "School Breakfast Program and School Performance," *American Journal of Diseases of Children*, No. 143, p. 1234-9, 1989.
- ¹⁷ Center on Hunger, Poverty and Nutrition Policy, 1998.
- ¹⁸ U.S. Department of Agriculture/Agricultural Research Services (USDA/ARS) Children's Nutrition Research Center. "Kids' heart-healthy diet gains weighed down by increasing obesity" Press Release regarding the study published in *American Journal of Epidemiology*, V. 153, p. 969-977, May 2001.
- ¹⁹ Neumark-Sztainer, Dianne; Mary Story, Cheryl Perry and Mary Anne Casey. "Factors influencing food choices of adolescents: Findings from focus-group discussions with adolescents." *Journal of the American Dietetic Association*, no. 99, p. 929-93, August 1999.
- ²⁰ Ibid.
- ²¹ U.S. Department of Agriculture. The National School Lunch Program: Background and Development, <http://www.fns.usda.gov/cnd/>
- ²² Ibid
- ²³ Ibid
- ²⁴ Gordon, A., et al. "Dietary Effects of the National School Lunch Program and the School Breakfast Program." *American Journal of Clinical Nutrition*. V. 61, (supplement) p. 221S-231S, 1995.
- ²⁵ USDA, January, 2000.
- ²⁶ Ibid.
- ²⁷ Lytel, Leslie A., et al. "How do Children's Eating Patterns and Food Choices Change Over Time? Results from a Cohort Study." *American Journal of Health Promotion*, v. 14, no. 4, p. 222-28, 2000.
- ²⁸ Jacobson, Michael F. *Liquid Candy: How Soft Drinks are Harming Americans' Health*. Center for Science in the Public Interest, 2000. www.cspinet.org/sodapop/liquid_candy.htm
- ²⁹ French, Simone A., et al. "Pricing and Promotion Effects on Low-Fat Vending Snack Purchases: The CHIPS Study." *American Journal of Public Health*, v. 91, no. 1, January 2001, p. 112-117.
- ³⁰ Cullen, Karen Weber. "Effect of a la carte and snack bar food at school on children's lunchtime intake of fruits and vegetables." *Journal of the American Dietetic Association*, December, 2000.
- ³¹ Harnack, Lisa. Availability of a la carte items in junior and senior high schools: A needs assessment. *Journal of the American Dietetic Association*, June, 2000.
- ³² Ibid.
- ³³ Harnack, 2000.
- ³⁴ King, Paul. "New Coca-Cola Marketing Pours it on for Education." *Nation's Restaurant News*, March 26, 2001.
- ³⁵ Ibid.
- ³⁶ Hornbeck, Mark. "Bill bans soda pop in schools." *The Detroit News*, March 26, 2001.
- ³⁷ Reported in Jacobson, 2000.
- ³⁸ Ludwig, David S., Karen E. Peterson and Steven L. Gortmaker. "Relation between consumption of Sugar-Sweetened Drinks and Childhood Obesity: A Prospective, observational Analysis." *The Lancet*, v. 357, February 17, 2001.
- ³⁹ American Dietetic Association. "Position of The American Dietetic Association: Local Support for Nutrition Integrity in Schools." *Journal of the American Dietetic Association*, January, 2000.

⁴⁰ French, et al, 2001.

⁴¹ See HR 2129 by Rep. Hinchy and S 745 by Sen. Leahy.

⁴² Decque, M. Daniel. Victor Katch, Albert Rocchini, Charles Marks and Catherine Moorhead. "Coronary Risk Incidence of Obese Adolescents: Reduction by Exercise Plus Diet Intervention." *Pediatrics*, v. 8, no. 5, May 1988.

⁴³ Centers for Disease Control and Prevention, National Center for Chronic Disease. (CDC, NCCD) Physical Activity and Health: A Report of the Surgeon General, 1996.

<http://www.cdc.gov/nccdphp/sgr/sgr.htm>

⁴⁴ National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health. www.niddk.nih.gov.

⁴⁵ Barovick, 2000.

⁴⁶ Shepard, Roy L. "Curricular Physical Activity and Academic Performance." *Pediatric Exercise Science*, v. 9, 1997.

⁴⁷ Sallis, James, et al. "Effects of Health-Related Physical Education on Academic Achievement: Project SPARK." *Research Quarterly for Exercise and Sport*. American Alliance for Health, Physical Education, Recreation and Dance: v, 70, no. 2, June 1999.

⁴⁸ Shepard, 1997, and Sallis, 1999.

⁴⁹ CDC, NCCD, 1996.

⁵⁰ Ibid.

⁵¹ McGinnis, J.M. and W. Foege. "Actual Causes of Death in the United States." *Journal of the American Medical Association*, v 270, no. 18. 1993.

⁵² See Nagourney, Eric. "Early Eating Habits Tied to Adult Ills." *New York Times*, March 23, 1999.

⁵³ King, Abby, et al. "Environmental and Policy Approaches to Cardiovascular Disease Prevention Through Physical Activity: Issues and Opportunities." *Health Education Quarterly*, v 22, no. 4, November, 1995.

⁵⁴ Barovick, 2000.

⁵⁵ American Heart Association (AHA)

<http://www.americanheart.org/>

⁵⁶ American Diabetes Association (ADA), www.diabetes.org.

⁵⁷ Texas Diabetes Council. *Type 2 Diabetes in Children and Adolescents: Statewide Action Plan*. Texas Department of Health, 1999.

⁵⁸ Diabetes Research Working Group. *Conquering Diabetes: A Strategic Plan for the 21st Century*. National Institutes of Health, Publication No. 99-4398, 1999.

⁵⁹ National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). "Diabetes in Hispanic Americans." National Institutes of Health, U.S. Department of Health and Human Services, January 2001.

⁶⁰ Texas Diabetes Council, 1999.

⁶¹ Kaiser Family Foundation State Health Facts, <http://www.statehealthfacts.kff.org>

⁶² Center for Public Policy Priorities. "Food and Hunger Fast Facts." <http://www.cppp.org/products/fastfacts/food.html>

⁶³ Rothstein, Richard. "When There's Simply Not Enough Food for Thought." *The New York Times*, August 1, 2001.

⁶⁴ Texas Diabetes Council. *The Promise of a Healthier Texas: A Plan to Prevent and Control Diabetes*, 2001.

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ Luepker, et al, 1996.

⁶⁸ Ibid.

⁶⁹ Texas Diabetes Council, 2001.

⁷⁰ Texas Education Agency Document, undated.

⁷¹ Ibid.

⁷² All of the legislation information is summarized from the actual legislation via the Texas Legislature Online's bill search engine, <http://www.capitol.state.tx.us/capitol/legis.htm>.

⁷³ Trevino, Robert P. "Bienestar: A Diabetes Risk-Factor Prevention Program." *Journal of School Health*. February, 1998, v. 68, no. 2.

⁷⁴ Barovick, 2000.

⁷⁵ Chong, Carol, et al. "Nutrition...From the Cafeteria to the Classroom." Research Poster presented that the American School Food Service Association's Annual National Conference, 2000. www.asfsa.org.

⁷⁶ Holliday, RoseAnna, et al. "Team Nutrition Demonstration Project." Research Poster presented that the American School Food Service Association's Annual National Conference, 2000.

⁷⁷ Singer, Beth W. "Playing With Food: Innovative Theater Project Stages Health Advice for Kids." <http://nutrition.tufts.edu/feature/prince.html>.